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ABSTRACT

This curriculum guide, one of 15 volumes written for field test use with educationally disadvantaged industrial education students needing additional instruction in the basic skill areas, deals with helping students develop basic verbal and visual communication skills while studying woodworking. Addressed in the individual units of the guide are the following topics: drawing and sketching for the wood shop, demonstrating and explaining changing blades on a table saw, explaining the terminology used to describe a block of wood, mastering the names of tools, teaching a woodworking lesson, and reading a working drawing. Each unit contains some or all of the following: a discussion of the major concepts of the technique being covered, instructions to the teacher concerning the use of the given technique, suggested related activities, student instructions, a student assignment, supplemental activities, and one or more worksheets. A basic skills checklist and a basic skills verification form are also provided to assist teachers in identifying those students who require additional help with basic skills. (MN)

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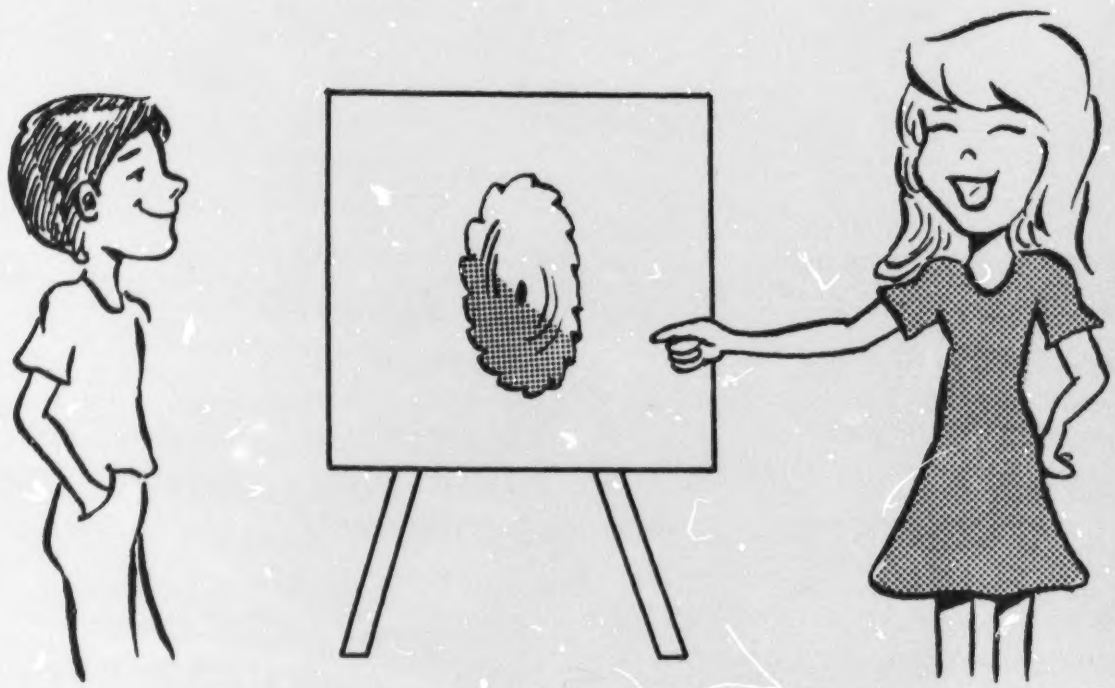
"Learning to Verbally & Visually Communicate the Woodworking Way"

ED244096



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CE038927

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INTRODUCTION

These instructional techniques were developed for those industrial education students who demonstrate a need for additional instruction in the areas of reading, writing, math, verbal and visual communication. They were written by industrial education teachers with a particular emphasis upon teaching a basic skill while retaining a major focus on the subject areas of auto, woods, metals, electronics, and drafting.

Each of these instructional techniques were written using the same format and with guidance from an expert in the areas of reading, writing, math, verbal and visual communication.

In order to help you identify those students who require additional help with the basic skills, a simple easy-to-use BASIC SKILLS CHECKLIST is provided with each subject area module. This Basic Skills Checklist will enable you as the Industrial Education Teacher to better identify those students in your classes who require additional help in the basic skills.

Additionally, a BASIC SKILLS VERIFICATION FORM is provided which will enable you to ask your school's reading resource teacher, basic skills teacher, math resource teacher, Hart Bill Conferencing teacher, or grade counselors, to verify your identification and provide you with help in the instruction of the basic skills.

You may wish to use these techniques as instruction for your entire class, or as a take-home, parent-involvement assignment. They may also be used in your school's reading or math lab or in conjunction with your school's basic skills instructional programs.

These instructional techniques are successful because your students are able to relate reading, writing, math, verbal and visual communication to their own industrial education classes. When your students succeed, they feel good about themselves, good about their schools, and good about their future.

Name _____

CONFIDENTIAL Grade _____ Class _____

Date _____

BASIC SKILLS CHECKLIST (WOODWORKING)

The following is a list of the basic skills (reading, writing, math, verbal and visual communication) that the student should demonstrate an ability in for the purpose of employment or advanced training in the woodworking trades.

1.0 Verbal Communication: The student needs additional instruction in verbal communication if any of the items below are checked NO:

1.1 Yes ____ The student understands verbal instructions given by the teacher.

No ____ Example: Does the student use the guards on the circular saw after being instructed to do so by the teacher?

1.2 Yes ____ The student asks questions about verbal instructions or information not understood.

No ____ Example: Does the student ask questions about the operation of a machine when it appears that the verbal instructions were not understood?

1.3 Yes ____ The student is able to relay simple verbal instructions to another student.

No ____ Example: Is the student able to tell another student the proper procedure for setting up a dado head on the circular saw after they have learned how to perform the operation efficiently?

1.4 Yes ____ The student is able to verbally communicate with the teacher and other students.

No ____ Example: When a student wants permission to perform a certain operation on a machine, is the student able to make the teacher understand his/her request?

2.0 Writing: The student needs additional instruction in writing if any of the items below are checked NO:

2.1 Yes ____ The student is able to write basic instructions to self and others.

No ____ Example: If a student needs to remember a sequence of tasks to be performed, can the student write them in order after being told the tasks by the teacher?

2.2 Yes ____ The student is able to write the answers to questions.

No ____ Example: After a student has demonstrated that they can answer questions orally, can they write the answers on paper?

3.0 Reading: The student needs additional instruction in reading if any of the items below are checked NO:

3.1 Yes ____ The student is able to read and understand job related materials.

No ____ Example: Is the student able to read and understand safety rules and warnings (including the shop safety test), job applications, job orders, and operating instructions for machines?

3.2 Yes ____ The student is able to follow step by step procedures listed on instructional/job sheets.

No ____ Example: Is the student able to perform tasks in a sequence after being given a demonstration and procedure sheet to follow?

4.0 Math: The student needs additional instruction in math if any of the items below are checked NO:

4.1 Yes ____ The student is able to read a rule to increments of 1/16th in.

No ____ Example: Is the student able to pass a test which involves reading a rule; or is the student, as observed by the teacher, able to make accurate measurements during layout work?

4.2 Yes ____ The student is able to calculate the amount of material needed to manufacture an item.

No ____ Example: Is the student able to calculate the amount of wood needed for the front, back, and two sides of a drawer to be constructed?

4.3 Yes ____ The student is able to calculate board feet.

No ____ Example: Given the dimensions of a piece of lumber, is the student able to apply the board feet formula to obtain a solution?

4.4 Yes ____ The student can add and subtract fractions.

No ____ Example: Given the sizes of blades and chippers on a dado set, is the student able to add or subtract the number of chippers needed for a specific width of cut?

5.0 Visual Communication: The student needs additional instruction in visual communication if any of the items below are checked NO:

5.1 Yes ____ The student can understand working drawings and sketches.

No ____ Example: Can a student with the necessary woodworking skills construct a simple project from a sketch or drawing provided by the teacher?

5.2 Yes ____ The student can communicate to self and others with simple sketches or drawings.

No ____ Example: Is the student able to draw or sketch an item they wish to construct?

Identification made by: _____ Date _____

BASIC SKILLS VERIFICATION FORM

Student _____ Male____ Female____ Grade Level_____

Teacher _____ Class_____ Date_____

The Basic Skills Check List (attached) for the above student indicates a need for instructional assistance in the basic skills (reading, writing, math, verbal or visual communication). The following verification and recommendations are made:

____Lacks Reading Skills

____Lacks Writing Skills

____Lacks Mathematical Skills

____Lacks Verbal Communication Skills

____Lacks Visual Communication Skills

METHOD USED FOR VERIFICATION

Recent Test Scores:

Test	Score	Date

Other Verification Methods:

_____

_____

RECOMMENDATIONS

The following instructional assistance is recommended: _____

_____.

Verification & Recommendations Made By: _____ Date:_____

Title:_____

_____

_____

FOLLOW UP

Action Taken: _____

Results: _____Qualified for advanced training

_____Qualified for employment in the trade

_____Other_____

Certified by: _____ Date:_____
Teacher

Drawing And Sketching For The Woodshop

(Visual Communication)

Woods Verbal/Visual 1

DRAWING AND SKETCHING
FOR THE WOODSHOP

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

VISUAL COMMUNICATION: This technique will assist the student in learning to communicate with simple sketching and drawing.

b. What student learning problem(s) prompted the development of this technique?

This technique was developed because of the inability of some students to draw and sketch.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Identify students who need individualized instruction in drawing and sketching.

b. Take a few minutes to show those students how to sharpen, hold, and use a pencil in sketching.

c. Provide each student with the assignment sheet on sketching and drawing. Explain the assignment and set a date for the return of the worksheets. At the teacher's discretion, the student may use a straight edge or sketch freehand.

d. Instructor will collect and review assignment. If additional practice is needed, the teacher can have the student repeat the assignment.

3. SUGGESTED RELATED ACTIVITIES:

Students can practice sketching projects and can also assist other students with the same assignment.

Follow up by giving students an object to sketch, then have them measure it and dimension their drawing.

DRAWING AND SKETCHING

FOR THE WOODSHOP

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. You are going to do an assignment that will help you learn to draw and sketch.

b. Complete the assignment found on the following student pages and return it to your teacher.

2. STUDENT ASSIGNMENT:

Your assignment is found on the following pages.

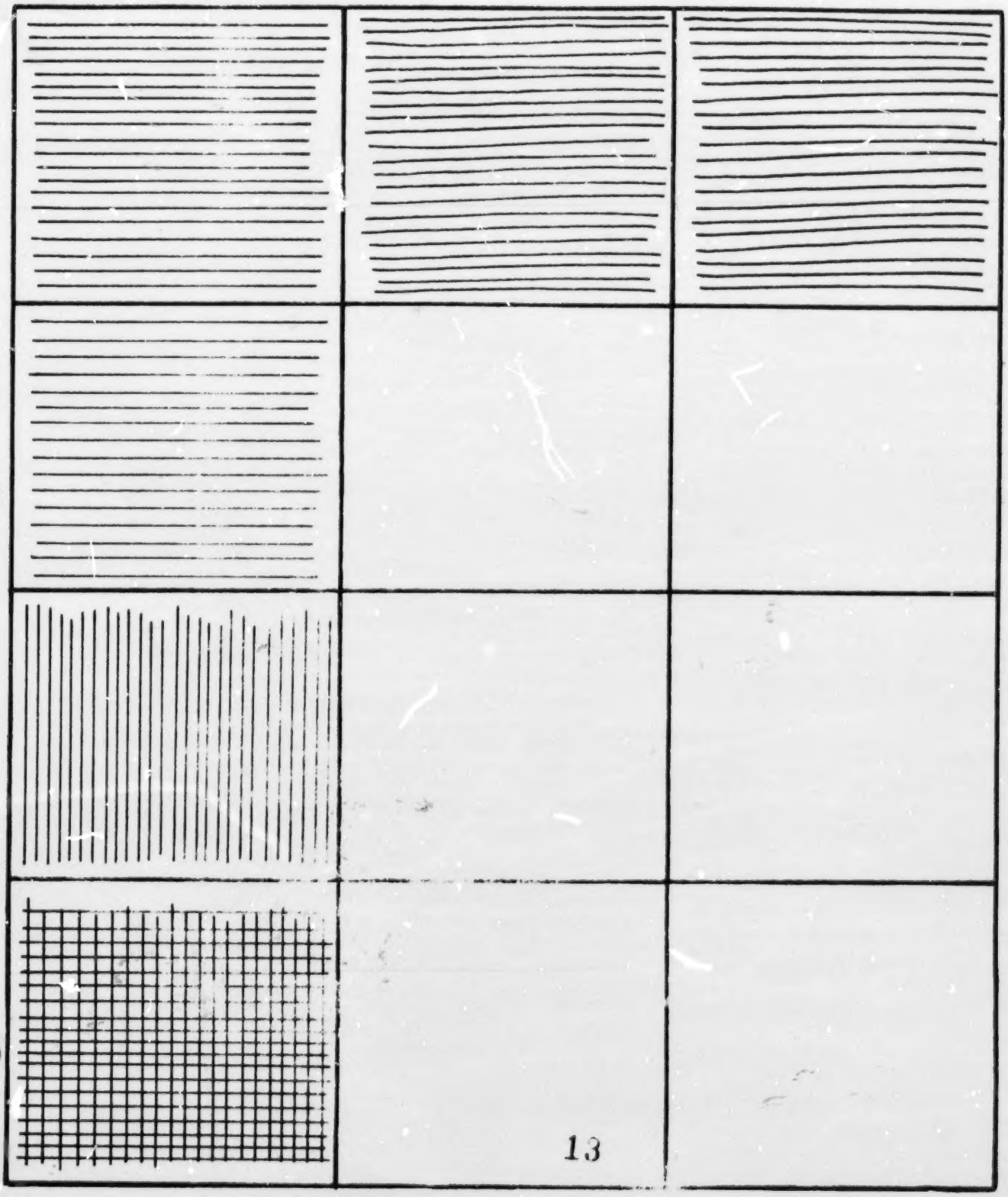
3. EXTRA THINGS THAT YOU CAN DO:

Why not draw sketches of other projects that you might build in another shop class?

STUDENT PAGE 1

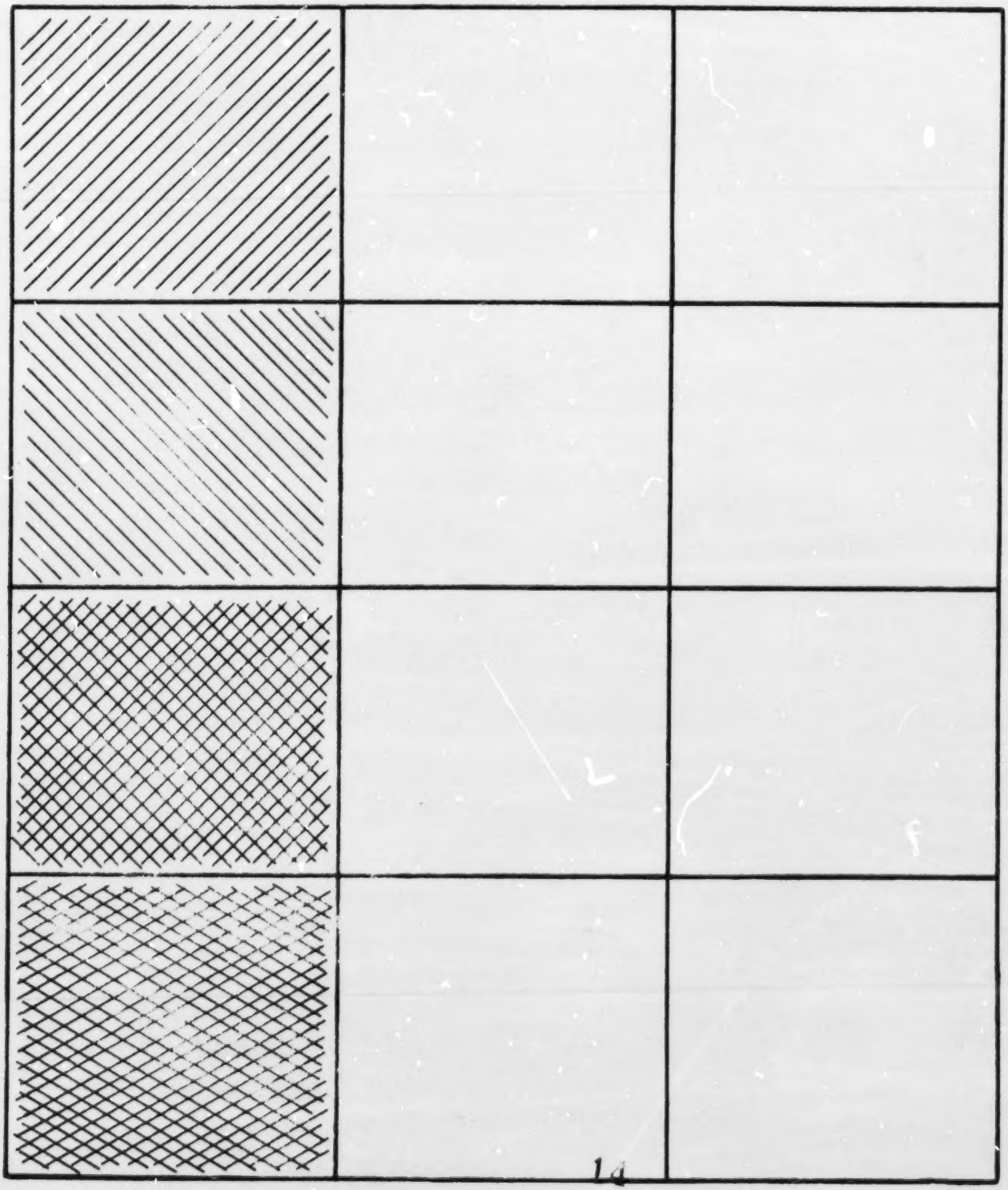
INSTRUCTIONS:

This assignment is to help you draw horizontal, vertical and diagonal lines. The boxes on the left hand side have sets of lines that you are to copy and draw in the two empty boxes on the right. The first row of boxes serves as an example.



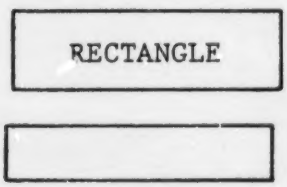
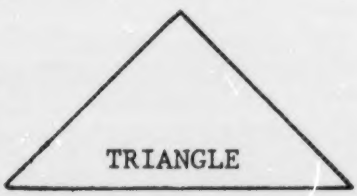
INSTRUCTIONS:

Continue to copy the lines in the boxes on the left by sketching them in the two empty boxes on the right.



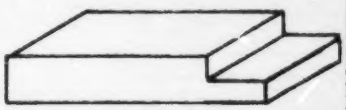
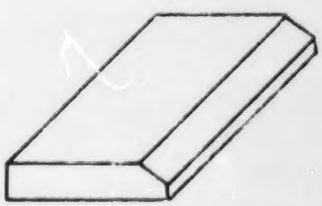
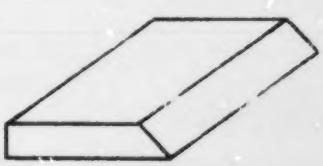
INSTRUCTIONS:

Fill in the empty boxes by sketching and labeling what you see in the boxes on the left.

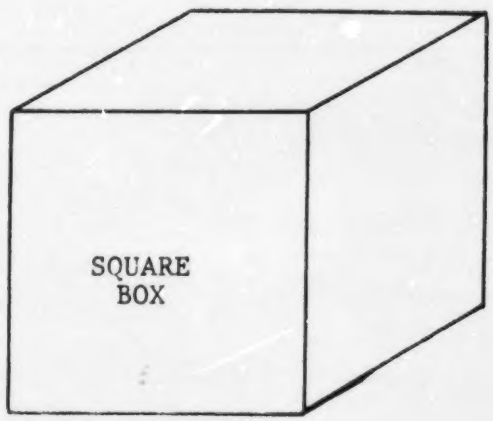
INSTRUCTIONS:

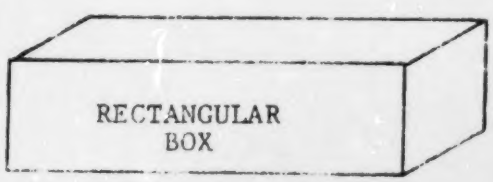
Fill in the empty boxes by sketching and labeling what you see in the boxes on the left.

 RABBET CUT		
DADO CUT		
 CHAMFER CUT		
 BEVEL CUT		

INSTRUCTIONS:

Continue sketching and labeling.

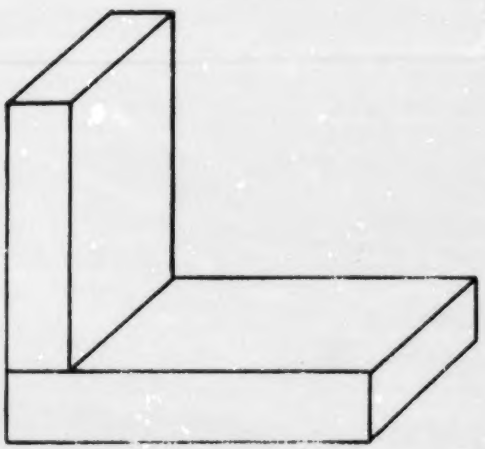




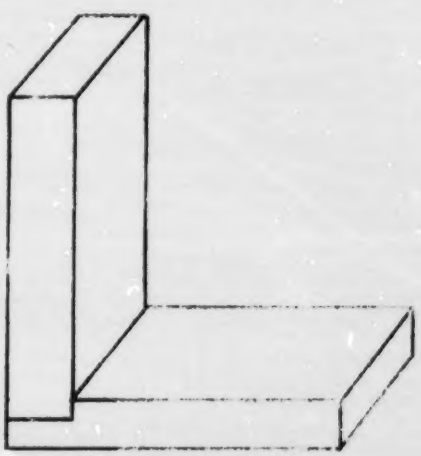
1.7

INSTRUCTIONS:

Continue sketching and labeling.



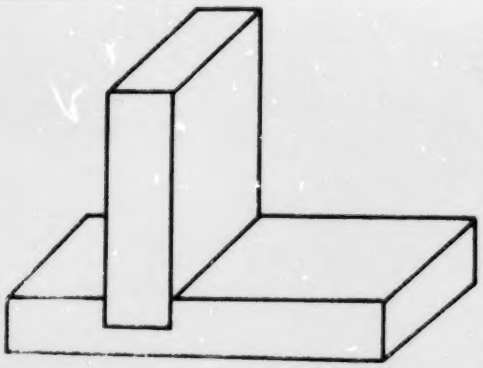
BUTT JOINT



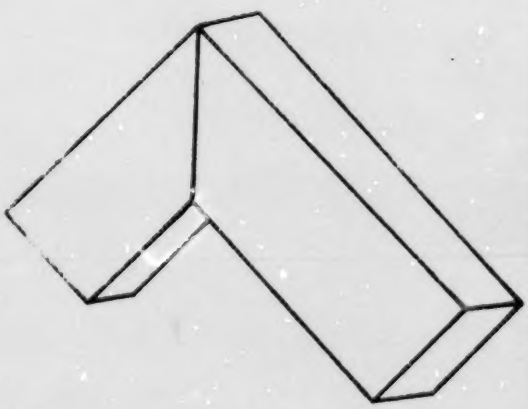
RABBET JOINT

INSTRUCTIONS:

Continue sketching and labeling.



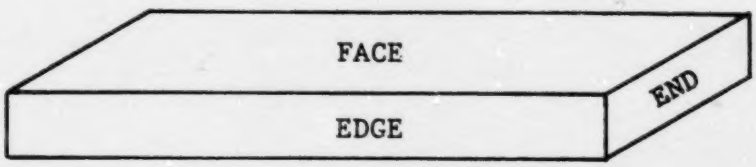
DADO JOINT



MITER JOINT

INSTRUCTIONS:

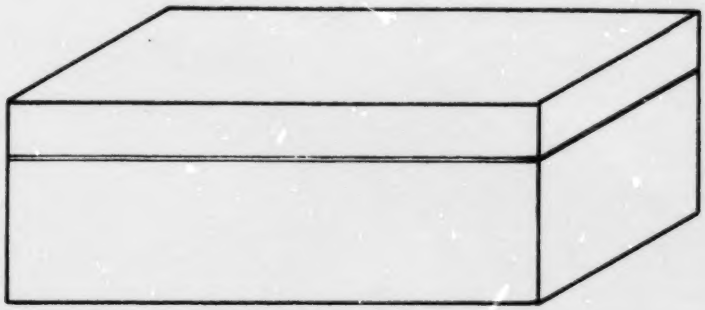
Fill in the lower box by sketching and labeling what you see in the upper box.



PARTS OF A BOARD

INSTRUCTIONS:

Continue sketching and labeling.

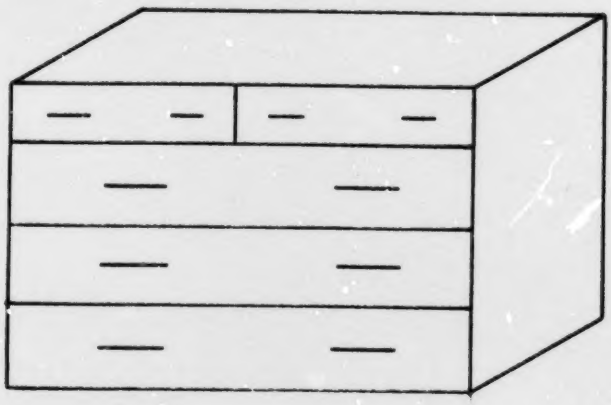


JEWELRY BOX

INSTRUCTIONS:

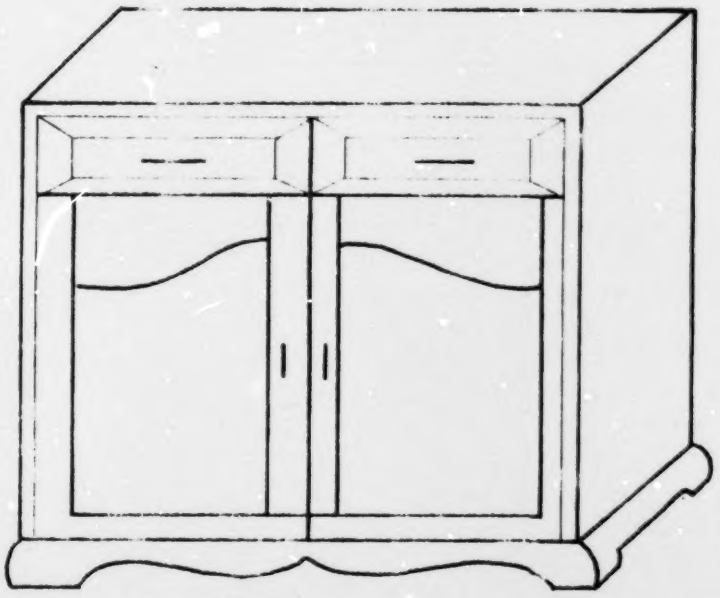
Continue sketching and labeling.

CHEST OF DRAWERS



INSTRUCTIONS:

Continue sketching and labeling.



CHEST WITH DRAWERS AND DOORS

A Block Of Wood

(Visual Communication)

Woods Verbal/Visual 2

A BLOCK OF WOOD

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

Vocabulary
Visual Communication

b. What student learning problem(s) prompted the development of this technique?

Students need to know basic wood terminology so they can understand lessons, procedure sheets, and the most basic language of the woodshop.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Using a piece of wood or an illustration on the chalk board, explain the terminology used to describe a piece of wood.

b. Give students the handout sheets and have them complete the assignment.

c. Check your student's work as it is completed.

3. SUGGESTED RELATED ACTIVITIES:

Have students label and measure scrap pieces of wood (wood scraps are easily provided - all shapes and sizes). Each student is given a piece of wood.

A BLOCK OF WOOD

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. On STUDENT PAGE 2 you will see a block of wood that you are to label.

b. Use the Word List to fill in the blanks.

c. These are words that you will often hear in woodworking and you need to start using them.

2. STUDENT ASSIGNMENT:

Your assignment is found on STUDENT PAGE 2.

3. EXTRA THINGS THAT YOU CAN DO:

a. You should be able to better understand these terms when you hear them spoken and when they are used in your project worksheet.

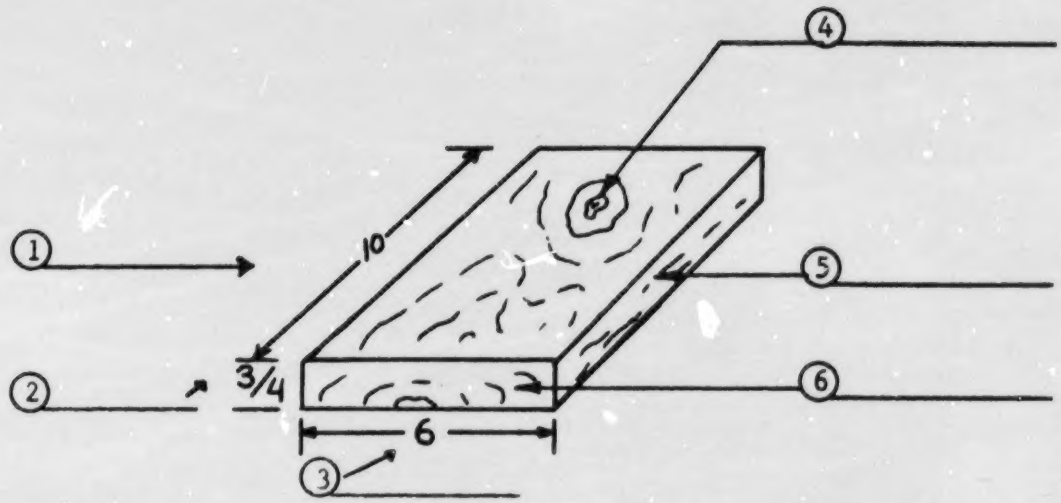
b. As you complete a bill of material for your project your knowledge of these terms will help you in your planning.

STUDENT PAGE 1

A BLOCK OF WOOD

WORD LIST:

Thickness	Face Side	End Side
Pine	Length	Knot
Width	Edge Side	Grain



7 Kind of wood _____

8 How long is this board?_____

9 How wide is this board?_____

10 How thick is this board?_____

CHANGING BLADES ON THE TABLE SAW

(Verbal Communication)

Woods Verbal/Visual 3

CHANGING BLADES ON THE TABLE SAW

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

Verbal Communication
Listening Skills

b. What student learning problem(s) prompted the development of this technique?

Students are unable to follow verbal instructions because of poor listening skills.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Record instructions for changing table saw blades on one side of a cassette tape and instructions for setting up a dado head on the other side.

b. Use this tape with students who need individual instruction on changing blades or setting up a dado head.

c. Make sure your students know that they need to listen to the tape very carefully as the verbal instructions will be the only instructions they will receive on these procedures.

d. When the student has completed the assignment, be sure he/she has it checked and approved by the instructor prior to using the table saw.

e. If this is the student's first time using the table saw, be sure to supervise the operation.

3. SUGGESTED RELATED ACTIVITIES:

If this procedure is successful in helping you work with students who have poor listening skills, you may want to record some of your other procedures.

CHANGING BLADES ON THE TABLE SAW

This recorded message will instruct you on the proper way of changing blades on the table saw. Listen carefully and follow the instructions.

Step 1: Go to the electrical panel and turn off the power to the table saw, return to the saw and test to see if the machine is off by pressing the start button.

Step 2: Remove the throat plate and wedge a piece of wood between the saw blade and the saw frame.

Step 3: Slip the wrench over the nut and pull toward you to loosen. Remove nut, collar and blade from arbor and put the blade away.

Step 4: Standing in front of the saw, place the blade you have selected on the arbor with the teeth of the saw blade pointing toward you.

Step 5: Replace the collar and nut. Wedge the saw blade as before, and tighten the nut by pushing the wrench away from you. Use moderate pressure on the wrench.

Step 6: Replace throat plate and guard. Turn the power on at the electrical panel and then call the instructor to check your set-up. Do not turn the machine on until the instructor gives you approval to do so.

SETTING UP A DADO HEAD ON THE TABLE SAW

This recorded message will instruct you on the proper way of changing blades on the table saw. Listen carefully and follow the instructions.

Step 1: Go to the electrical panel and turn off the power to the table saw, return to the saw and test to see if the machine is off by pressing the start button.

Step 2: Remove the throat plate and wedge a piece of wood between the saw blade and the saw frame.

Step 3: Slip the wrench over the nut and pull toward you to loosen. Remove nut, collar and blade and put the blade away.

Step 4: Standing in front of the saw, place the first blade of the dado set on the arbor with the teeth pointing toward you. Place the number of chippers needed to give you the required thickness and then place the other blade on the arbor followed by the collar and nut.

Step 5: Before tightening the nut, space the chippers evenly around the arbor and be sure that the swaged cutting edge of the chippers are in the gullet of the saw blade. Remember that swaging means to spread the cutting edge of a saw tooth so that it makes a wider cut. That's why it must be set next to the gullet and not come into contact with the saw blade.

Step 6: Wedge the saw blade as before, and tighten the nut by using moderate pressure on the wrench.

Step 7: Replace the throat plate and guard. Be sure to use the right throat plate as the one needed for the dado set has a wider opening. Turn the power on again at the electrical panel and call the instructor to check your set-up. Do not use the machine until the instructor has given you the "go-ahead".

CHANGING BLADES ON THE TABLE SAW

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. You will be using the tape player to help you learn to change blades on the table saw and/or learn to set up the dado head.

Check out the tape player, cassette tape, and visual chart on CHANGING BLADES ON THE TABLE SAW from your teacher.

b. Set the tape player up on the table saw surface and get the tools and blades you need for the procedure.

c. Follow the instructions on the tape and you will learn how to change blades on the table saw.

d. When your set up is complete, call the instructor. DO NOT USE THE MACHINE UNTIL YOU RECEIVE PERMISSION FROM YOUR TEACHER.

2. STUDENT ASSIGNMENT

Your assignment is on the cassette tape.

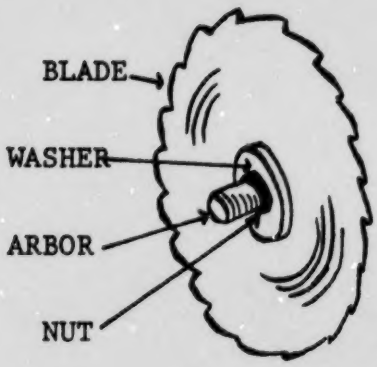
3. EXTRA THINGS THAT YOU CAN DO:

Ask your teacher to record other machine instructions on tape.

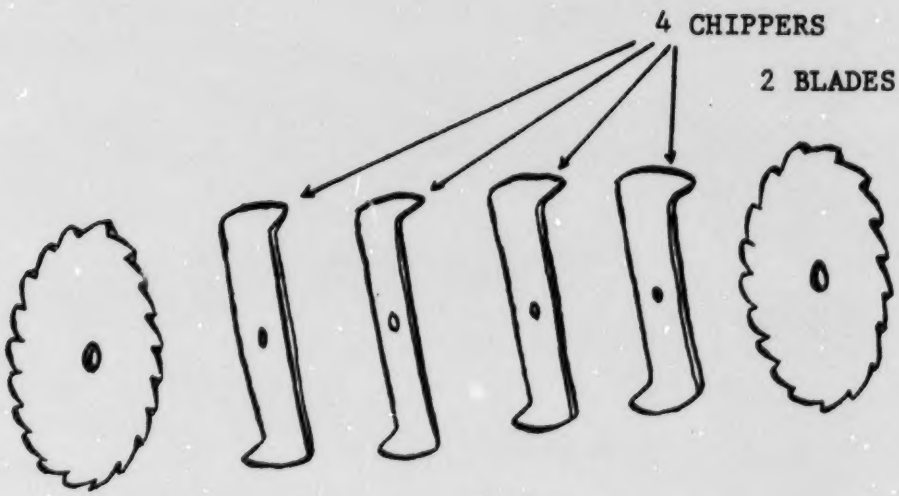
Visual Chart

Changing Blades On The Table Saw

THROAT PLATE



WRENCH



$\frac{1"}{8}$ $\frac{1"}{4}$ $\frac{1"}{8}$ $\frac{1"}{8}$ $\frac{1"}{16}$ $\frac{1"}{8}$

3.5

PICTURE CROSSWORD PUZZLE FOR WOODWORKING

(Visual Communication)

Woods Verbal/Visual 4

PICTURE CROSSWORD PUZZLE FOR WOODWORKING

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

VISUAL COMMUNICATION: This technique will assist the student in learning to understand working drawings and sketches.

b. What student learning problem(s) prompted the development of this technique?

This technique was developed because of the inability of some students to construct a simple item from a sketch or drawing provided by the teacher, even with the necessary woodworking skills.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Select items (orthographic drawings, section views, hidden lines, parallel lines, etc.) that students need to recognize verbally and understand.

b. Compile a list of the above items and develop a crossword puzzle using some of these words. (It is not necessary to use every word.)

c. Draw the items used in the crossword puzzle (see student assignment sheet) and number them to correspond with the crossword puzzle.

d. Place in the square of each drawing the unit number where that item can be found in the textbook used as a resource for this technique. The resource for this technique is The Basic Book of Drafting by Paul I. Wallach.

e. Issue the students the crossword puzzle assignment and encourage them to use the resource textbook only as a last resort. Note: This assignment is to be used to help those students that have difficulty understanding simple drawings and sketches, but will be used as a class assignment so as not to single out students who have a learning problem.

3. SUGGESTED RELATED ACTIVITIES:

Give the students a list of items or words and have them develop a simple crossword problem.

PICTURE CROSSWORD PUZZLE FOR WOODWORKING

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. After you have completed the lesson and practice on sketching and drawing for the woodshop, work on the Picture Crossword Puzzle. If you need help in understanding how to do a crossword puzzle, your instructor will do a simple puzzle on the blackboard or overhead projector.

b. Solve the crossword puzzle. Use your textbook only as a last resort.

2. STUDENT ASSIGNMENT:

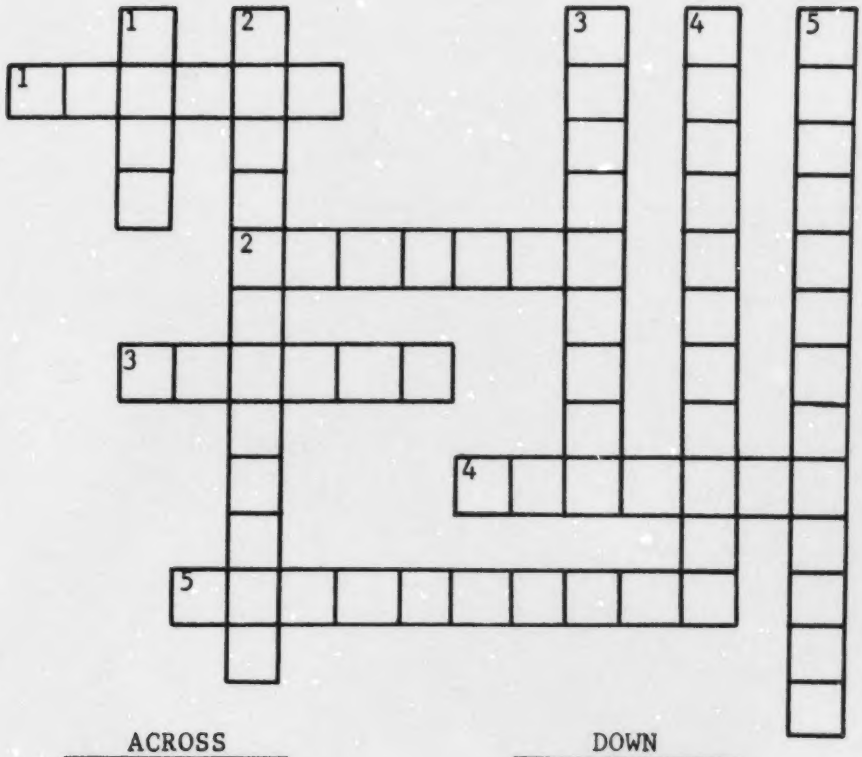
Your assignment is found on STUDENT PAGE 2.

3. EXTRA THINGS THAT YOU CAN DO:

You can develop new puzzles or obtain extra puzzles from your instructor to work on at home for extra credit.

STUDENT PAGE 1

PICTURE CROSSWORD PUZZLE



ACROSS

1 unit 12

2 unit 16

3 unit 12

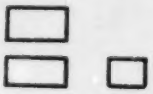
4 unit 20

5 unit 10

DOWN

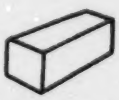
1 unit 12

2 unit 13



3 unit 15

4 unit 19



5 unit 10

QUESTION/ANSWER DAY

(Verbal Communication)

Woods Verbal/Visual 5

QUESTION AND ANSWER DAY

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

1. Asking appropriate questions

2. Organizing the thought behind the question

b. What student learning problem(s) prompted the development of this technique?

1. Students are often reluctant to ask questions because they feel other students will ridicule them or because they do not want to take time away from their class assignment.

2. Student questions are often not well thought out.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Make available to your students a specific place where they may deposit written questions.

b. Inform the students that they will remain anonymous.

c. Select a certain time of the week that you will answer the questions and let your students know when that will be. For example, Friday can be a day when questions are answered.

d. Encourage students to ask questions that are specific and brief.

e. You will most likely get prank questions so preview the questions before reading them to the class.

f. You might "plant" a few questions to get things started.

g. This technique will make it easier for the student who will not voice his or her question in front of the class.

3. SUGGESTED RELATED ACTIVITIES:

When your students feel more comfortable submitting written questions, have some of your students read the questions to the class.

Learning The Names Of Tools

Using The Language Master Machine

(Verbal Communication)

Woods Verbal/Visual 6

LEARNING THE NAMES OF TOOLS

USING THE LANGUAGE MASTER MACHINE

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

VERBAL COMMUNICATION: This technique will assist the student in learning to communicate verbally.

b. What student learning problem (s) prompted the development of this technique?

This technique was developed because some students have difficulty learning and pronouncing the names of tools used in woodworking.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Obtain a language master machine from the library or reading lab and a supply of cards to be used in the machine.

b. Record the following on the card:

1. Pronounce the name of the tool.
2. Spell the name of the tool.
3. Pronounce the name again (may not be possible if the word is very long).

c. Write the word on one side of the language master card and put the picture of the tool on the other side.

d. Allow the student ample time to practice. When the student feels they have mastered the vocabulary, you can test them or have them record their answers on the language master.

3. SUGGESTED RELATED ACTIVITIES:

Use this system to teach other vocabulary, i.e.; parts of a machine, wood joints, etc.

LEARNING THE NAMES OF TOOLS

USING THE LANGUAGE MASTER MACHINE

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. Pronounce the technical word written on the language master card and look at the picture of the tool on the back of the card.

b. Run the language master card through the machine and listen to the correct pronunciation. Run the card through the machine again and check the spelling of the word you hear recorded against the writing on the card.

c. Practice until you can identify and pronounce the name of the tool on each card.

d. When you feel you have mastered the names of each of the tools, ask the instructor to check your progress. You will be quizzed orally or may be asked to record the words on the language master.

2. EXTRA THINGS THAT YOU CAN DO:

You can help other students learn the names of woodworking tools by assisting them in using the language master.

STUDENT TEACHES STUDENT

(Verbal Communication)

Woods Verbal/Visual 7

STUDENT TEACHES STUDENT

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

VERBAL COMMUNICATION: This technique will assist the student in learning how to communicate with other students.

b. What student learning problem(s) prompted the development of this technique?

This technique was developed because some students are unable to give simple verbal instructions to other students.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Identify students who have difficulty communicating verbally with other students.

b. Tell the student you need help in showing other students how to perform certain woodworking operations (this student should know how to perform the operation).

c. Ask the student to demonstrate a woodworking task.

d. Review the operation to be demonstrated to be sure it is understood by the student.

e. Help the student complete the "Machine Safety Demonstration" card.

f. The assignment should be completed the following day with informal observation of the teacher.

3. SUGGESTED RELATED ACTIVITIES:

Students can strengthen their ability to verbally communicate by repeating the demonstration for other students or electing to teach a new operation.

STUDENT TEACHES STUDENT

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

   a. You will help the teacher by demonstrating to other students how to _____.

   b. Study or review the vocabulary and safety rules that apply to the demonstration.

   c. Complete the 3 x 5 demonstration card and make necessary notes.

   d. Use available reading material from home, the library or classroom to prepare for your demonstration assignment.

2. STUDENT ASSIGNMENT: THE DEMONSTRATION

   a. To prepare for your demonstration, practice with someone at home. Remember that the best demonstrations are those which are told in your own words.

   b. Review your demonstration with the teacher.

   c. Your teacher will tell you which students to help.

   d. You will be given extra credit for your demonstrations.

3. EXTRA THINGS THAT YOU CAN DO:

   You may wish to continue to improve yourself by helping other students with the same demonstration.

SAMPLE ASSIGNMENT CARD

FRONT

MACHINE SAFETY DEMONSTRATION

Student's name_____ Period_____

Date of Demonstration_____

Machine name_____

Operation_____

Notes:_____

_____

_____

BACK

SAFETY RULES:

1._____
2._____
3._____
4._____
5._____
6._____
7._____
8._____
9._____

READING A WORKING DRAWING

(Visual Communication)

Woods Verbal/Visual 8

READING A WORKING DRAWING

TEACHER MATERIALS:

1. CONCEPTS OF TECHNIQUE:

a. What SKILL will this technique teach?

Visual communication
Selecting relevant details

b. What student learning problem(s) prompted the development of this technique ?

Students who enroll in Wood Shop don't always have drafting experience. Many students have never had to obtain information from a two or three-view working drawing.

2. TEACHER INSTRUCTIONS FOR THE USE OF THIS TECHNIQUE:

a. Provide the worksheet with complete drawing and incomplete parts list.

b. Review thickness, width and length dimensions with students.

c. Explain the importance of being able to read drawings and being able to make a parts list.

3. SUGGESTED RELATED ACTIVITIES:

a. Show students drawings of advanced projects.

b. Have students measure a sample product such as their chair and make a parts list.

READING A WORKING DRAWING

STUDENT MATERIALS:

1. STUDENT INSTRUCTIONS:

a. On Student Page 2 you will see a working drawing and a picture drawing of a book rack.

b. In the parts list, found on Student Page 3, you are to list the names of the book rack parts in the first column.

c. In the second column list the number of identical parts.

d. In the remaining columns, for each part, list these dimensions: thickness, width and length.

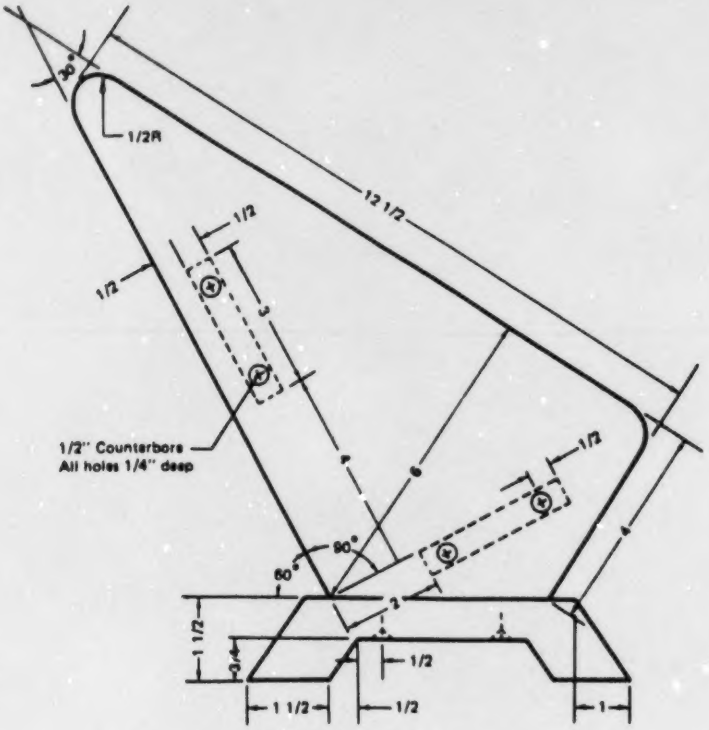
e. In the future you will be required to read a working drawing and make a parts list of your projects.

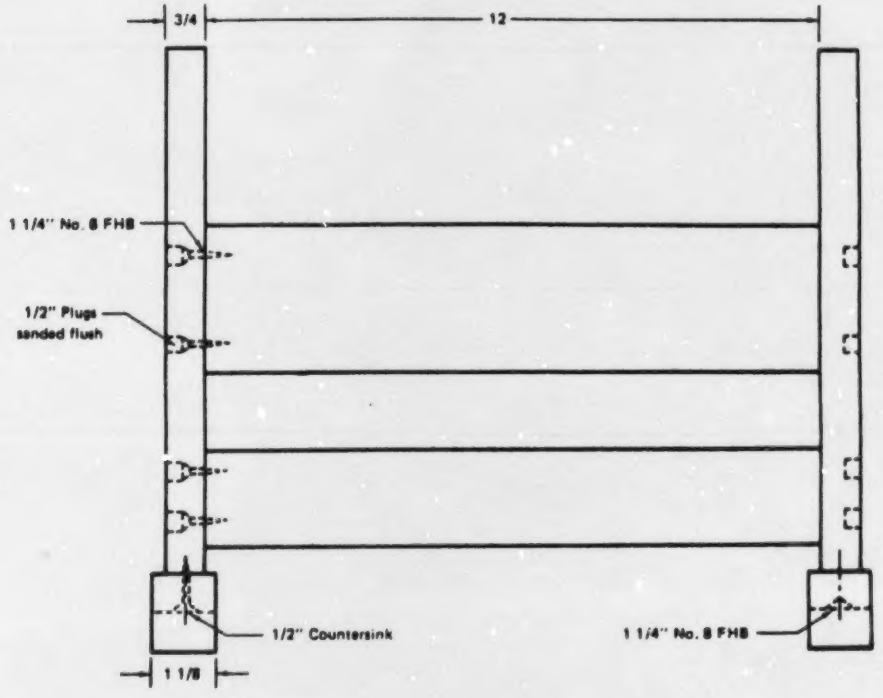
2. STUDENT ASSIGNMENT:

Your assignment is found on STUDENT PAGES 2 AND 3.

3. EXTRA THINGS THAT YOU CAN DO:

Think of a project you would like to make. How many parts are required in the project?

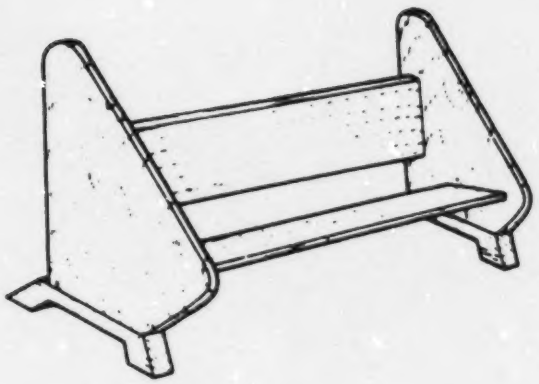




STUDENT PAGE 2

BEST COPY AVAILABLE

READING A WORKING DRAWING



PART NAME	NO. OF PARTS	THICK-- NESS	WIDTH	LENGTH

THE FOLLOWING INDUSTRIAL EDUCATION BASIC SKILL INSTRUCTIONAL TECHNIQUES ARE AVAILABLE FROM:

VOICE (VOCATIONAL OCCUPATIONAL INFORMATION CENTER FOR EDUCATORS)

721 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

"LEARNING TO READ AND WRITE THE AUTOMOTIVE WAY"
"LEARNING TO DO MATH THE AUTOMOTIVE WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE AUTOMOTIVE WAY"

"LEARNING TO READ AND WRITE THE WOODWORKING WAY"
"LEARNING TO DO MATH THE WOODWORKING WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE WOODWORKING WAY"

"LEARNING TO READ AND WRITE THE METALWORKING WAY"
"LEARNING TO DO MATH THE METALWORKING WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE METALWORKING WAY"

"LEARNING TO READ AND WRITE THE ELECTRONICS WAY"
"LEARNING TO DO MATH THE ELECTRONICS WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE ELECTRONICS WAY"

"LEARNING TO READ AND WRITE THE DRAFTING WAY"
"LEARNING TO DO MATH THE DRAFTING WAY"
"LEARNING TO VERBALLY & VISUALLY COMMUNICATE THE DRAFTING WAY"